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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,551

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EXAMINER

CASCA, FRED A

ART UNIT

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2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,551	Applicant(s) NISHIO ET AL.	
	Examiner FRED A. CASCA	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atarashi et al (U.S. Pub. No. 2003/0214927 A1) in view of Wu (U.S. Pub. No. 2004/0125772 A1) and further in view of Shapira (2003/0073463 A1).

Referring to claim 1, Atarashi discloses a radio communication apparatus (Fig. 1 and paragraph 21) comprising:

an acquirer that acquires a parameter comprising an indicator of a propagation environment in which pilot symbols are transmitted (paragraphs 103, 108, “the propagation path, that is to say, the condition of the radio channel between the transmitter and the receiver”); a pilot pattern selector that selects a pilot pattern indicating positions of the pilot symbols in a frequency domain according to the parameter acquired (paragraph 79, “selecting the orthogonal pilot symbol”).

Atarashi does not specifically disclose the pilot pattern selector also selects positions of pilot symbols in time domain as claimed.

Art Unit: 2617

Wu discloses that a system determines symbols to be mapped into a time domain representation (par. 37).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the apparatus of Atarashi in the format claimed by using the mapping of symbols into time domain as taught by Wu, for the purpose of providing an efficient communication system.

The combination of Atarashi/Wu does not specifically disclose a transmitter that transmits a signal including information of the pilot pattern selected.

Shapira discloses BSs transmit both traffic and pilot signal information over the forward link, (Par. 176).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the combination by incorporating the teachings of Shapira, for the purpose of providing an efficient communication system.

Claim 15 recites features analogous to the features of claim 1, thus, the combination of Atarashi/Wu/Shapira discloses all elements of claim 15.

Referring to claim 2, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 1, and further disclose the acquirer has an interference amount measurer that measures an amount of interference caused by signals transmitted from a radio communication apparatus other than a communicating party or by multipath signals; and the pilot pattern selector selects a pilot pattern

Art Unit: 2617

whereby a proportion of the pilot symbols is greater when the amount of interference increases (Atarashi, Par. 112, 117-118, "interference").

Referring to claim 3, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 2, and further discloses the interference amount measurer measures the amount of interference using the pilot symbols contained in a received signal (Atarashi, Par. 112, 117-118, 133, 135).

Referring to claim 13, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 1, and further discloses the transmitter transmits a signal containing pilot symbols arranged according to a pilot pattern set per time slot; and the pilot pattern selector selects a pilot pattern for each of a plurality of communicating parties (Atarashi, Par. 112, 117-118, 133, and 135, Shapira, Par. 176).

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atarashi et al (U.S. Pub. No. 2003/0214927 A1) in view of Wu (U.S. Pub. No. 2004/0125772 A1) and further in view of Shapira (2003/0073463 A1) and still further in view of Ozeki et al (US 2005/0078315 A1).

Referring to claim 4, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 1.

The above combination does not specifically disclose the acquirer has a delay dispersion measurer that measures delay dispersion indicated by delayed waves of

Art Unit: 2617

a received signal; and the pilot pattern selector selects a pilot pattern whereby the pilot symbols are densely arranged in the frequency domain when the delay dispersion increases.

Ozeki discloses a measuring unit that measures the delay or the dispersion (Par. 21).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination in the format claimed by incorporating the teachings of Ozeki, for the purpose of providing an efficient communication system.

Referring to claim 5, the combination of Atarashi/Wu/Shapira and Ozeki discloses the radio communication apparatus according to claim 4 and inherently discloses that the delay dispersion measurer generates a delay profile of the received signal and measure the delay dispersion (Ozeki, Par. 21).

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination in the format claimed by incorporating the teachings of Ozeki, for the purpose of providing an efficient communication system.

Referring to claim 6, the combination of Atarashi/Wu/Shapira and Ozeki discloses the radio communication apparatus according to claim 4.

The above combination is silent on the delay dispersion measurer storing in advance the delay dispersion corresponding to a shape of a cell to where the radio communication apparatus belongs.

Art Unit: 2617

It would have been an obvious design choice to modify the combination above by having the delay dispersion measurer to store in advance the delay dispersion corresponding to a shape of a cell to where the radio communication apparatus belongs since the applicant has not disclosed that having the delay dispersion measurer to store in advance the delay dispersion corresponding to a shape of a cell to where the radio communication apparatus belongs solves any particular problem or is for any particular purpose.

4. Claims 7-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atarashi et al (U.S. Pub. No. 2003/0214927 A1) in view of Wu (U.S. Pub. No. 2004/0125772 A1) and further in view of Shapira (2003/0073463 A1) and still further in view of well known prior art (MPEP 2144.03).

Referring to claim 7, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 1.

The combination above does not specifically disclose the acquirer has a moving speed estimator that estimates moving speed of the apparatus or a communicating party, and the pilot pattern selector selects a pilot pattern that the pilot symbol is densely configured in the time domain as the moving speed increases.

The examiner takes official notice of the fact that estimating moving speed of a wireless device is well known in the art.

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination in the format claimed, for the purpose of providing an efficient communications system.

Art Unit: 2617

Referring to claim 8, the combination of Atarashi/Wu/Shapira does not specifically disclose the moving speed estimator estimates the moving speed based on a variation in reception power of the pilot symbols contained in the received signal.

The examiner takes official notice of the fact that estimating speed based on a variation in reception power of pilot signals within a received signal is well known in the art.

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination, for the purpose of providing an efficient communication system.

Referring to claim 9, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 1.

The combination above does not specifically disclose a modulation scheme selector that selects a modulation scheme of data transmitted from a communicating party, wherein the pilot pattern selector selects the pilot pattern corresponding to the parameter and a modulation level of the modulation scheme selected in the modulation scheme selector.

The examiner takes official notice of the fact that selecting a modulation scheme.

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination in the format claimed by providing a modulation scheme selector that selects a modulation scheme of data transmitted from a communicating party, and allow the pilot pattern selector to select the pilot pattern corresponding to the parameter and a

Art Unit: 2617

modulation

level of the modulation scheme selected in the modulation scheme selector, for the purpose of providing an efficient communication system.

Referring to claim 10, the combination of Atarashi/Wu/Shapira and well-known art discloses the radio communication apparatus according to claim 9.

The combination does not specifically disclose the pilot pattern selector selects a pilot pattern where the pilot symbols are densely arranged in the time domain or in the frequency domain when the modulation level of the modulation scheme selected in the modulation scheme selector increases.

It would have been an obvious design choice to modify the combination above by having the pilot symbols to be densely arranged in the time domain or in the frequency domain when the modulation level of the modulation scheme selected in the modulation scheme selector increases since the applicant has not disclosed that having the pilot symbols to be densely arranged in the time domain or in the frequency domain when the modulation level of the modulation scheme selected in the modulation scheme selector increases resolves any stated problem or is for any particular purpose.

Referring to claim 11, the combination of Atarashi/Wu/Shapira does not disclose an adder that adds to the parameter an offset with a value that varies with the modulation level of the modulation scheme selected in the modulation scheme selector, wherein the pilot pattern selector selects the pilot pattern according to the parameter with the offset added thereto.

Art Unit: 2617

The examiner takes official notice of the fact that viding an adder to add parameters and then having the pilot pattern selector select pattern according to the parameter added is well known in the art.

It would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination, for the purpose of providing an efficient communication system.

Referring to claim 12, the combination of Atarashi/Wu/Shapira and well known art discloses the apparatus of claim 9.

The combination of Atarashi/Wu/Shapira does not disclose the pilot pattern selector selects a pilot pattern obtained by further inserting a number of pilot symbols in accordance with the modulation level of the modulation scheme selected in the modulation scheme selector to the pilot pattern selected according to the parameter.

It would have been an obvious design choice to modify the above combination by having the selector to select a pattern by further inserting a number symbols in accordance to a modulation scheme since the applicant has not disclosed that having inserted such number resolves any particular problem or is for any particular purpose.

Referring to claim 14, the combination of Atarashi/Wu/Shapira discloses the radio communication apparatus according to claim 13.

The above combination is silent on an assigner that assigns a time slot to each of the plurality of communicating parties based on the pilot pattern selected in the pilot pattern selector.

Art Unit: 2617

The examiner takes official notice of the fact that assigning time slots in communication parties is well known in the art, e.g., in TDMA.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of invention to modify the above combination in the format claimed for the purpose of providing an efficient channel allocation system.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred A. Casca whose telephone number is (571) 272-7918. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Harper, can be reached at (571) 272-7605. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/VINCENT P. HARPER/

Supervisory Patent Examiner, Art Unit 2617